No axial grip veins
no cutting veins

(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 369 633 A1**

(12) # EUROPEAN PATENT APPLICATION

(21) Application number: **89311184.9**

(51) Int. Cl.5: **A47G 33/12**

(22) Date of filing: **30.10.89**

(30) Priority: **11.11.88 GB 8826435**

(43) Date of publication of application:
23.05.90 Bulletin 90/21

(84) Designated Contracting States:
AT BE CH DE ES FR GB GR IT LI LU NL SE

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(54) **Christmas tree stand.**

(57) A Christmas tree stand comprises a lower, upwardly-open, downwardly-tapering socket (14) for receiving the lower end (30,30') of the trunk of the tree, an outer wall (4,6) surrounding the socket (14) and a top wall (20) of a resilient plastics material capping the outer wall. A central aperture (24) is formed through the top wall (20) to overlie the socket (14) and of a diameter substantially equal to that of the smallest trunk to be received within the stand, a plurality of substantially radial slots (26) being formed in the top wall (20) to define a plurality of leaves (28) each of generally truncated sector shape and resiliently yieldable on the insertion therethrough and withdrawal therefrom of the trunk.

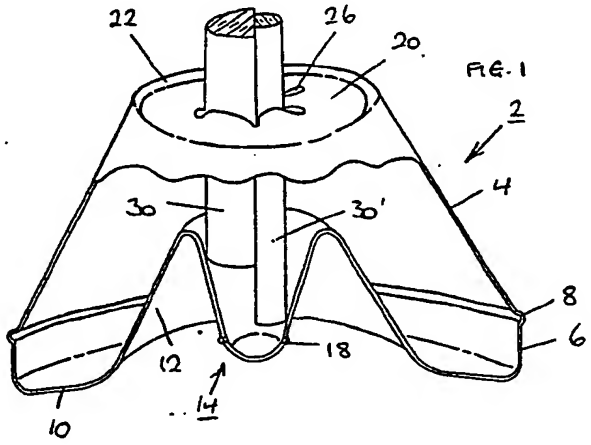


FIG. 1

EP 0 369 633 A1

CHRISTMAS TREE STAND

This invention relates to a Christmas tree stand.

It is known to provide stands for Christmas trees which are capable of receiving and supporting therein the lower ends of trunks of varying diameters. Such stands are disclosed in, for example, US specifications nos. 2044192, 3058707 and 3302909.

However, all of these stands utilise relatively complex mechanical means for gripping the trunk of the tree and are therefore expensive to manufacture and prone to loss or breakage of components essential to the supporting of the tree in the stand.

It has been proposed, for example in US specification no. 2750138, to provide a stand incorporating a receiving portion for the trunk of a tree in the form of a cylindrical metal container the top wall of which is radially slit whereby the trunk can be forced through, to be partially supported by, the leaves defined by the radial slits.

However, such an arrangement requires the provision of an additional stand to support, and provide stability to, the container, while the sharp nature of the radial slit configuration in the top wall of the metal container could lead to severe damage both to the trunk of the associated tree and to the fingers of a user should they be inadvertently poked into the container.

Further, once deformed into their operative positions gripping a trunk, the leaves of the top wall of the container cannot readily be returned to their rest positions for subsequent re-use of the stand.

It would be desirable to be able to provide a stand for a Christmas tree of relatively simple construction capable of receiving a range of trunk diameters and which overcame the aforementioned problems of the known arrangements.

According to the present invention, there is provided a stand for a Christmas tree, the stand comprising a lower, upwardly-open, downwardly-tapering socket for receiving therein the lower end of the trunk of the tree, and an outer wall surrounding the socket and capped by a transverse top wall of a resilient plastics material, the top wall having a central aperture formed therethrough overlying the socket and of a diameter substantially equal to that of the smallest trunk to be received within the stand, and a plurality of substantially radial slots formed in said top wall to define a plurality of leaves each of generally truncated sector shape and resiliently yieldable on the insertion therethrough and withdrawal therefrom of the trunk.

It will be appreciated that the provision of a central aperture in a top wall of a resilient plastics material not only provides a lead-in for the lower end of the trunk on location of a tree in the stand but also substantially eliminates the possibility of damage to the trunk or to the fingers of the user.

Further, the resilient nature of the leaves in the top wall enables ready insertion and removal of a trunk, the stand being re-usable without the requirement of any servicing thereto.

In a preferred embodiment of the invention, the locations and configurations of the socket and of the central aperture in the top wall of the stand are such that two stands can be partially nested, with the lower regions of the socket of one stand received within, to project through, the central aperture in the top wall of the other stand.

The nestable nature of the stands substantially reduces the volume required for storage of the stands by a retailer or wholesaler.

The outer wall of the lower regions of the socket of a stand may be provided with a circumferential ridge or a plurality of circumferentially spaced projections adapted to project through the central aperture in the top wall of the other stand and to co-operate with the radially inner edges of the leaves of the top wall of the other stand to effect positive nesting between the two stands.

Preferably the inner wall of the socket has a plurality of circumferentially-spaced, longitudinal ribs formed thereon.

Conveniently the stand comprises an upwardly-tapering, frusto-conical inner wall within the outer wall and surrounding the socket, the upper rim of the socket being integral with, and supported by, the upper rim of the inner wall.

Preferably the top wall of the stand is surrounded by a peripheral upstanding ridge. Such a ridge, as well as providing rigidity to the stand, defines, together with the top wall, a hollow upper region to the stand into which water can be poured for watering the tree.

The stand may be blow-moulded from a plastics material such as polypropylene or high density polyethylene and may comprise a one-piece moulding.

Alternatively the stand may comprise a plurality of components and may include, for example, a removable and replaceable top wall.

By way of example only, an embodiment of the invention will now be described in greater detail with reference to the accompanying drawings of which:

Fig. 1 is a partial vertical section through a stand according to the invention showing parts of two trunks of different diameters received therein;

Fig. 2 is a plan view from above of a stand according to the invention;

Fig. 3 is a vertical section on the line III-III of Fig. 2;

Fig. 4 is a plan view from below of the socket of the stand of Figs. 2 and 3;

Figs. 5 and 6 are vertical sections through the socket of the stand of Figs. 2 and 3 showing therein trunks of maximum and minimum diameters respectively capable of being held by the stand, and

Fig. 7 shows, in partial vertical sections, two stands according to the invention nested one within the other.

Referring to the drawings, the illustrated stand comprises a one-piece blow moulding of, for example, polypropylene or high density polyethylene and includes an outer wall 2 having an upper region 4 of upwardly-tapering, generally frusto-conical shape and a lower region 6 of generally cylindrical shape, the upper and lower regions 4,6 including a circumferential ridge 8 therebetween.

The lower region 6 of the outer wall 2 merges into an annular base portion 10 on which the stand is supported, the base portion 10 being integral with an upwardly-tapering, generally frusto-conical inner wall 12 contained within the outer wall 2 and terminating at a level just above that of the ridge 8.

The lower regions of the stand are completed by an upwardly-open socket indicated generally at 14 and of generally inverted conical shape, the upper rim of the socket 14 being integral with the upper edge of the inner wall 12 and the base of the socket 14 being located just above the level of the base portion 10 of the stand.

The internal wall of the socket 14 has three longitudinal, equi-spaced ribs 16 formed thereon, while a circumfer ential ridge 18 is formed around the lower regions of the outer wall of the socket 14 for reasons which will become apparent.

The stand is completed by a circular transverse top wall 20 between the periphery of which and the upper region 4 of the outer wall 2 is formed an upstanding, circumferential ridge 22, whereby the top wall 20 and the ridge 22 together form a hollow bowl in the upper region of the stand.

Formed centrally through the top wall 20 is a circular aperture 24 the diameter of which is just less than the diameter of the smallest trunk to be supported in the stand. A plurality of radial slots 26 extend outwardly from the aperture 24 to define a corresponding plurality of leaves 28 each of generally truncated sector shape. The material and configuration of the leaves 28 make them resiliently yieldable to upward or downward pressure thereon, while the resultant top wall 20 is of slightly upwardly convex shape.

The described stand can be used to support Christmas trees the trunks of which have a diameter between predetermined upper and lower limits, typically between about 30 mm and 70mm. The diameter of the aperture may typically be about 30mm.

In use, the butt end of the trunk of a Christmas tree is located over the aperture 24 in the top wall 20 and is then pushed downwardly therethrough, the aperture 24 providing a lead-in for such movement. The resilient leaves 28 are displaced downwardly by this movement of the tree, which downward movement of the tree is continued until the butt end of the trunk seats in, and engages the tapering side walls/ribs 16 of, the socket 14.

Fig. 5 shows the location of the butt end 30 of a trunk of the maximum diameter received in the upper regions of the tapering socket 14, while Fig. 6 shows the butt end 30′ of a trunk of the minimum diameter received in the lower regions of the tapering socket 14. In both cases, the longitudinal ribs 16 supplement the location of the butt end 30, 30′ in the socket 14.

In this operative position of the Christmas tree in the stand, the bottom end of the trunk is supported by the socket 14, with the resiliently-displaced leaves 28 gripping the trunk to locate the tree in an upright position. Fig .1 shows the relative positions of the butt ends 30, 30′ of Figs. 5 and 6 in the operative position of the stand, as well as the displaced positions of the leaves 28. Clearly, the larger the diameter of the tree trunk, the more displacement will there be on the leaves 28 and the more tightly will the trunk be gripped. The hollow interior of the stand is filled with water.

Removal of the tree from the stand is achieved by raising the tree vertically relative to the stand against the bias of the leaves 28 until the butt end of the tree is free of the top wall 20. After removal, the leaves 28, being of resilient, visco-elastic material, return to their initial configuration, the slightly upwardly convex shape of the top wall 20, as well as reducing the differences in forces required to insert and remove the tree and reducing the stress on the stand during removal of the tree, compensating for any slight downward deformation of the leaves that may occur from extended use of the stand.

As mentioned above, the inner ends of the leaves 28 have blunt ends which ensures that the leaves grip the butt end of the trunk but do not bite into the bark of the tree, thus permitting ready removal of the tree from the stand. Further, such a configuration reduces the possibility of accidental damage to a user's fingers.

The leaves 28 provide self-centring of the tree in the stand, but, unlike the known shape metal leaves, also allow the butt end of the trunk to be deliberately offset as may be required with a bent or slightly deformed trunk.

The slots 26 in the top wall 20 are generously radiused at their outer ends to minimise stress concentration in the material of the top wall 20 and to prevent accidental tearing of the material of the top wall 20. These slots 26 are thus of a specific length and are not extended or torn by the insertion of a tree.

The provision of the annular base portion 10 ensures 360° contact of the stand with the floor and at the outside diameter of the stand, thus providing maximum stability and spreading the load on the stand to reduce marking of a carpet or the like. Such an arrangement also permits a stand/tree assembly to be easily slid around the floor to permit optimum positioning thereof.

The socket 14 is deliberately positioned above the level of the base portion 10, and therefore clear of the floor, to maximise stability of the stand and to prevent contact of the socket 14 even with thick, soft carpets.

The hollow bowl formed in the upper region of the stand by the top wall 20 and the ridge 22 enables water to be poured onto the top wall 20 and to penetrate through the slots 26 to replenish the water already stored in the interior of the stand. The ridge 22 also adds rigidity to the stand.

A major feature of the described stand is that two or more stands can be partly-nested one within another.

More particularly, the configurations of the upper region 4 of the outer wall 2 and the inner wall 12, as well as the diameters and relative locations of the lower regions of the socket 14 and the aperture 24 in the top wall 20, enable partial nesting of two stands as shown in Fig. 7, with the upper region 4 of the outer wall 2 of one stand received within the lower regions of the inner wall 12 of another stand, and with the lower regions of the socket 14 of the other stand projecting through the aperture 24 in the top wall 20 of the one stand.

The circumferential ridge 18 formed around the socket 14 is located such that, with two stands nested as shown in Fig. 7 and with the walls 2,12 of the two stands substantially abutting, the ridge on the socket 14 of the upper stand has snapped through the central aperture 24 in the top wall 20 of the lower stand to co-operate with the free ends of the leaves 28 and to provide a small but positive interlocking between the two stands.

Clearly such nestability is a distinct advantage to a stockist of the stands, substantially reducing the storage volume required for his stock and facilitating transport of the stands.

Although described as a one-piece moulding, the stand could comprise a plurality of interconnected components and could include a removable top wall 20 which could be removed as required or replaced by a substitute wall for use with other than Christmas trees during other than the Christmas period.

The material of the stand is such that it is reusable time and time again, the resiliency of the leaves 28 being such as to withstand several insertions and removals of a tree trunk without permanently deforming the top wall 20. Blow-moulding of an integral unit has the advantage that the thickness of the material at various regions within the stand can be varied, for example being thick over the main body portion of the stand to prevent puncture and leakage of water therefrom, but being thinner at the leaves 28 to provide the desired resiliency.

An integral unit further eliminates the possibility of losing a component of the stand as exists with current arrangements, while no tools are required to mount a tree in the stand of the invention.

The stand may be ballasted with water, sand or pebbles or a combination of these, water having the advantage of keeping the tree fresh.

The exterior of the stand may be provided with an integrally moulded or separately added, motif, pattern or instructions for use.

Claims

1. A Christmas tree stand comprising a lower, upwardly-open, downwardly-tapering socket (14) for receiving therein the lower end (30,30′) of the trunk of the tree, and an outer wall (4,6) surrounding the socket, characterised in that the outer wall (4,6) is capped by a transverse top wall (20) of a resilient plastics material, the top wall having a central aperture (24) formed therethrough overlying the socket (14) and of a diameter substantially equal to that of the smallest trunk to be received within the stand, and a plurality of substantially radial slots (26) formed in said top wall (20) to define a plurality of leaves (28) each of generally truncated sector shape and resiliently yieldable on the insertion therethrough and withdrawal therefrom of the trunk.

2. A stand as claimed in claim 1 in which the locations and configurations of the socket (14) and of the central aperture (24) in the top wall (20) of the stand are such that two stands can be partially nested with the lower regions of the socket (14) of one stand received within, to project through, the central aperture (24) in the top wall (20) of the other stand.

3. A stand as claimed in claim 2 in which the outer wall of the lower regions of the socket (14) is provided with a circumferential ridge (18) or a plurality of circumferentially-spaced projections adapted to project through the central aperture (24) in the top wall (20) of the other stand and to co-

operate with the leaves (28) of the top wall (20) of the other stand to effect positive nesting between the two stands.

4. A stand as claimed in any one of claims 1 to 3 in which the inner wall of the socket (14) has a plurality of circumferentially-spaced, longitudinal ribs (16) formed thereon.

5. A stand as claimed in any one of claims 1 to 4 and comprising an upwardly-tapering, frusto-conical inner wall (12) within the outer wall (4,6) and surrounding the socket (14), the upper rim of the socket (14) being integral with, and supported by, the upper rim of the inner wall (12).

6. A stand as claimed in any one of claims 1 to 5 in which the top wall (20) is surrounded by a peripheral, upstanding ridge (22).

7. A stand as claimed in any one of claims 1 to 6 and blow-moulded from a plastics material.

8. A stand as claimed in claim 7 and comprising a one-piece moulding.

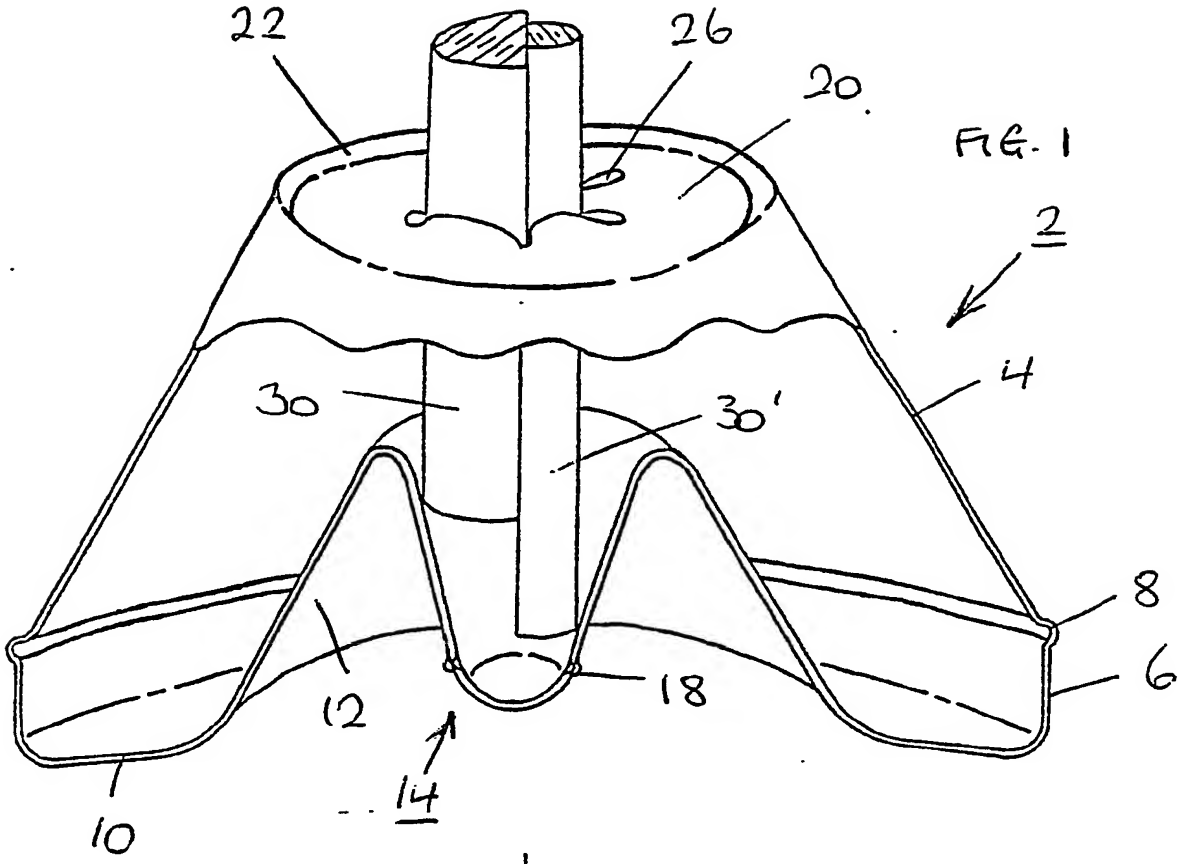


FIG. 1

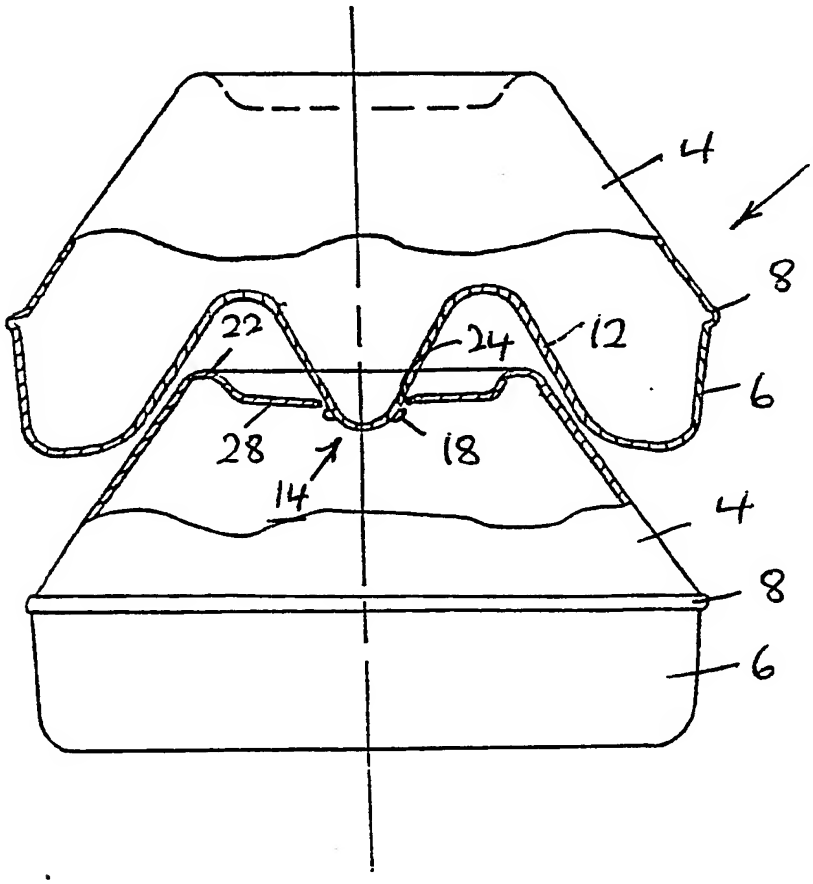


FIG. 7

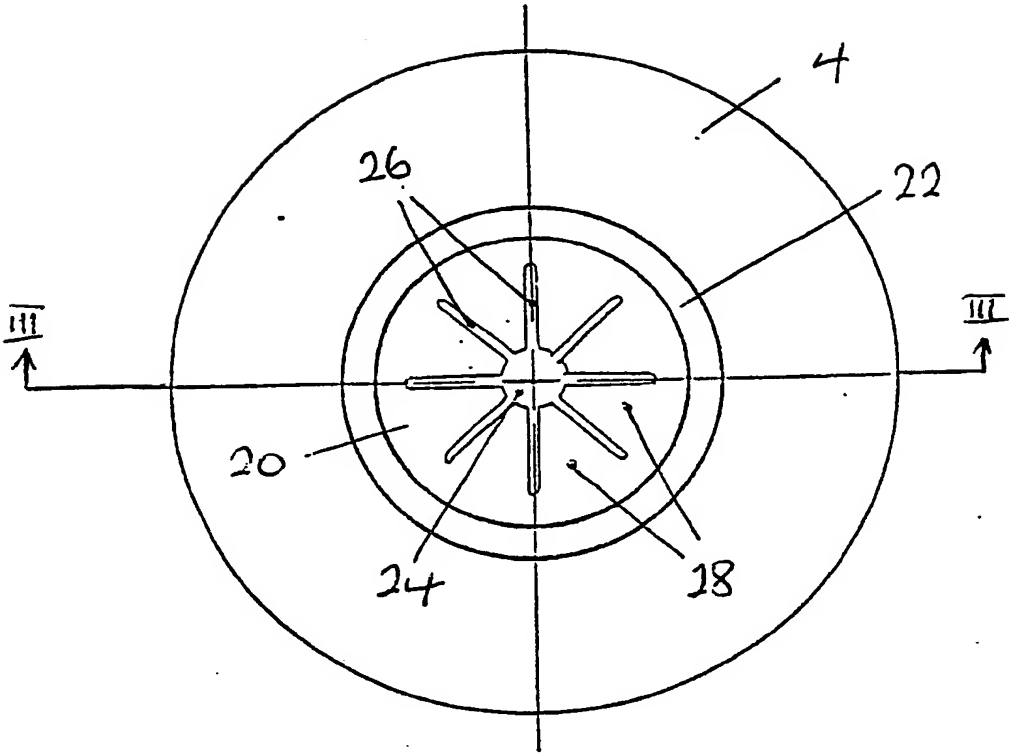


FIG. 2

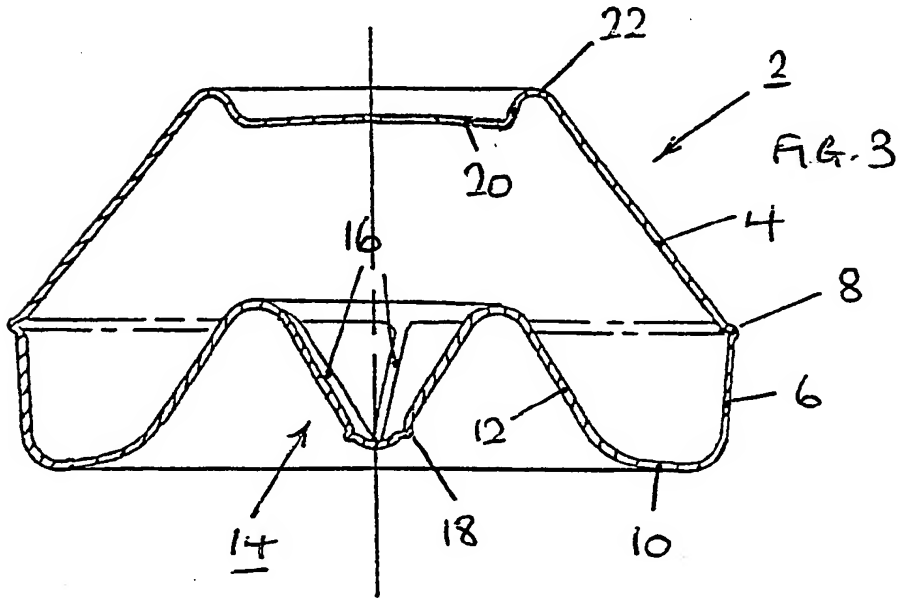
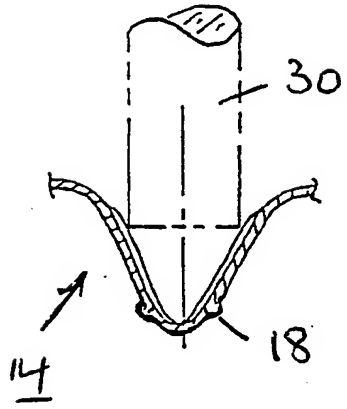


FIG. 3

FIG. 5



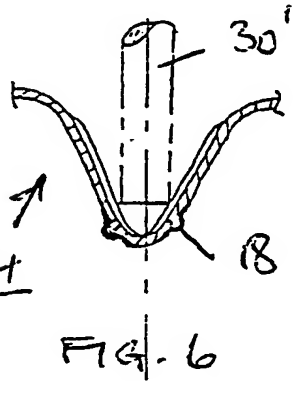


FIG. 6

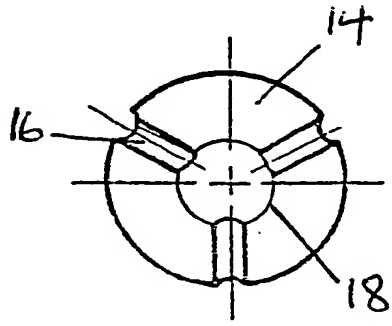


FIG. 4

European Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 89 31 1184

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X,D	US-A-2750138 (MORRIS) * column 3, lines 12 - 25; figures 3, 10 *	1, 6	A47G33/12
X,D	US-A-3058707 (LEGO) * figures 1-3 *	1	
A,D	US-A-2044192 (TEMPLIN) * figures 2-4 *	1, 4, 5	
A,D	US-A-3302909 (GLASSMAN) * figure 3 *	1, 2, 7, 8	

TECHNICAL FIELDS SEARCHED (Int. Cl.5)

A47G

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	14 FEBRUARY 1990	BEUGELING G. L. H.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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A : technological background
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3